User Guide

XTP Extender

XTP T VGA

XTP VGA Transmitter

Extron Electronics

INTERFACING, SWITCHING AND CONTROL

68-2091-01 Rev. B
04 14

Safety Instructions

Safety Instructions • English

WARNING: This symbol, ⚠, when used on the product, is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

ATTENTION: This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, **www.extron.com**.

Instructions de sécurité • Français

AVERTISSEMENT : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur la présence à l'intérieur du boîtier du produit d'une tension électrique dangereuse susceptible de provoquer un choc électrique.

ATTENTION : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec le matériel.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, **www.extron.com**.

Sicherheitsanweisungen • Deutsch

WARNUNG: Dieses Symbol ⚠ auf dem Produkt soll den Benutzer darauf aufmerksam machen, dass im Inneren des Gehäuses dieses Produktes gefährliche Spannungen herrschen, die nicht isoliert sind und die einen elektrischen Schlag verursachen können.

VORSICHT: Dieses Symbol ⚠ auf dem Produkt soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Weitere Informationen über die Sicherheitsrichtlinien, Produkthandhabung, EMI/EMF-Kompatibilität, Zugänglichkeit und verwandte Themen finden Sie in den Extron-Richtlinien für Sicherheit und Handhabung (Artikelnummer 68-290-01) auf der Extron-Website, **www.extron.com**.

Instrucciones de seguridad • Español

ADVERTENCIA: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de voltaje peligroso sin aislar dentro del producto, lo que puede representar un riesgo de descarga eléctrica.

ATENCIÓN: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento recogidas en la documentación proporcionada con el equipo.

Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, **www.extron.com**.

Инструкция по технике безопасности • Русский

ПРЕДУПРЕЖДЕНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии неизолированного опасного напряжения внутри корпуса продукта, которое может привести к поражению электрическим током.

ВНИМАНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии важных инструкций по эксплуатации и обслуживанию в руководстве, прилагаемом к данному оборудованию.

Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: **www.extron.com**, номер по каталогу - 68-290-01.

Chinese Simplified（简体中文）

警告： ⚠产品上的这个标志意在警告用户该产品机壳内有暴露的危险 电压，有触电危险。

注 意： ⚠ 产品上的这个标志意在提示用户设备随附的用户手册中有重要的操作和维护(维修) 说明。

关于我们产品的安全指南、遵循的规范、EMI/EMF 的兼容性、无障碍使用的特性等相关内容，敬请访问 Extron 网站 **www.extron.com**，参见 Extron 安全规范指南，产品编号 68-290-01。

Chinese Traditional（繁體中文）

警告: ⚠若產品上使用此符號，是為了提醒使用者，產品機殼內存在著可能會導致觸電之風險的未絕緣危險電壓。

注意 ⚠ 若產品上使用此符號，是為了提醒使用者，設備隨附的用戶手冊中有重要的操作和維護（維修）說明。

有關安全性指導方針、法規遵守、EMI/EMF 相容性、存取範圍和相關主題的詳細資訊，請瀏覽 Extron 網站：**www.extron.com**，然後參閱《Extron 安全性與法規遵守手冊》，準則編號 68-290-01。

Japanese

警告: この記号 ⚠ が製品上に表示されている場合は、筐体内に絶縁されていない高電圧が流れ、感電の危険があることを示しています。

注意: この記号 ⚠ が製品上に表示されている場合は、本機の取扱説明書に 記載されている重要な操作と保守(整備)の指示についてユーザーの 注意を喚起するものです。

安全上のご注意、法規厳守、EMI/EMF適合性、その他の関連項目については、エクストロンのウェブサイト **www.extron.com** より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01) をご覧ください。

Korean

경고: 이 기호 ⚠ 가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

주의: 이 기호 ⚠ 가 제품에 사용될 경우, 장비와 함께 제공된 책자에 나와 있는 주요 운영 및 유지보수(정비) 지침을 경고합니다.

안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트(**www.extron.com**)의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. The Class A limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. This interference must be corrected at the expense of the user.

ATTENTION: The Twisted Pair Extension technology works with shielded twisted pair (STP) cables **only**. To ensure FCC Class A and CE compliance, STP cables and STP connectors are also required.

For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the "**Extron Safety and Regulatory Compliance Guide**" on the Extron website.

Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

WARNING: A warning indicates a situation that has the potential to result in death or severe injury.

ATTENTION: Attention indicates a situation that may damage or destroy the product or associated equipment.

NOTE: A note draws attention to important information.

TIP: A tip provides a suggestion to make working with the application easier.

Software Commands

Commands are written in the fonts shown here:

```
^AR Merge Scene,,Op1 scene 1,1 ^B 51 ^W^C
[Ø1] R ØØØ4 ØØ3ØØ ØØ4ØØ ØØ8ØØ ØØ6ØØ [Ø2] 35 [17] [Ø3]
```

Esc X1 * X17 * X20 * X23 * X21 CE ←

NOTE: For commands and examples of computer or device responses mentioned in this guide, the character "Ø" is used for the number zero and "O" represents the capital letter "o."

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 2Ø8.132.18Ø.48: bytes=32 times=2ms TTL=32
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx –t
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.

Click the **OK** button.

Specifications Availability

Product specifications are available on the Extron website, **www.extron.com**.

Contents

Introduction

This section contains general information about this guide and the Extron XTP T VGA Universal XTP Transmitter, and selected device features. Topics in this section include:

About this Guide

This guide contains installation, operation, and control procedures; and reference information for the XTP T VGA Universal XTP Transmitter. In this guide, the terms “XTP T VGA” and “transmitter” are used interchangeably to refer to the XTP T VGA Universal XTP Transmitter.

About the XTP T VGA

The Extron XTP T VGA is a universal XTP transmitter that sends multi-format analog video, audio, control, and Ethernet up to 330 feet (100 meters) over a single shielded twisted pair (STP) cable. It digitizes all incoming analog formats and applies SD Pro processing to deinterlace 480i and 576i video signals for reliable display on a variety of output devices. To simplify integration, the XTP transmitter features VGA loop-through for source monitoring. It also allows Ethernet extension and insertion of bidirectional RS-232 and IR for LAN access and AV device control at remote locations. The XTP T VGA transmitter works with XTP Systems for signal distribution and long-distance transmission to remote endpoints.

The XTP T VGA can be powered locally or remotely through an Extron Power Injector or XTP matrix switcher (see **Power Connection** on page 8).

To configure and control the XTP T VGA, connect a host device, such as a computer, and enter Simple Instruction Set (SIS) commands (see **SIS Configuration and Control** on page 11) or use the XTP System Configuration Software (see **XTP System Configuration Software** on page 16).

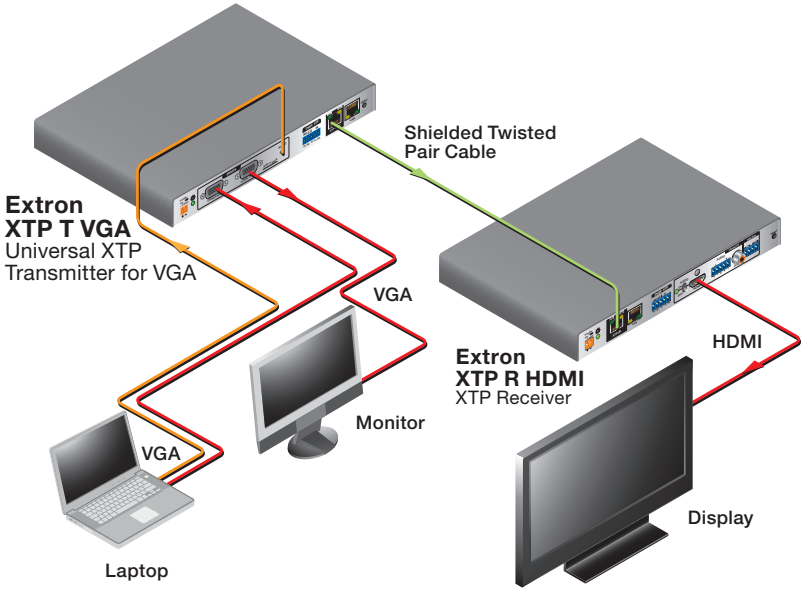


Figure 1. Typical Point-to-Point Application

Key Features

Reliable cable infrastructure — Transmits digitized analog video, audio, bidirectional RS-232 and IR, and Ethernet up to 330 feet (100 meters) over a single STP cable.

Support for Computer-video to 1920x1200, including HDTV 1080p/60 — Supports digital signal transmission up to 330 feet over a single twisted pair cable, maintaining superior image quality at the highest resolutions.

RGB, HD component video, S-video, and composite video signals support

Shielded twisted pair cable compatibility — Optimized for use with common shielded twisted pair (STP) cable types. XTP systems fully support a maximum transmission distance of 330 feet (100 meters) for all compatible resolutions when used with shielded twisted pair cable. Shielded twisted pair cabling with solid center conductor sizes of 24 AWG or better is recommended for optimal performance.

SD Pro processing — Provides deinterlacing of 480i and 576i signals for compatibility with HDMI and DVI-equipped displays, without the need for additional scalers.

Digital conversion of analog video and audio input signals — Digitizes analog signals, ensuring that a reliable, high quality digital video signal is sent to the output destination. The universal input supports RGB, HD component video, S-video, and composite video signals.

Auto input format detection — Detects the incoming signal format and automatically converts it to a digital TMDS signal for routing. This feature can reduce the number of required outputs for an XTP CrossPoint matrix switcher, lowering system cost while improving manageability.

Universal 15-pin HD input loop-through — Provides a local monitor output, enabling the input signal to be monitored without the need for a separate distribution amplifier.

Bidirectional RS-232 and IR insertion — Allows a remote display to be controlled without the need for additional cabling through bidirectional RS-232 control and IR signals inserted into the XTP output.

EDID Minder — Automatically manages EDID communication between connected devices to ensure that all sources properly power up and reliably display content.

Ethernet extension — Centralized 10/100 Ethernet communication can be implemented via an Ethernet pass-through port to reduce the amount of independent network drops required within a system.

Remote power capability — To simplify integration, the XTP T VGA can be powered by an XTP CrossPoint matrix switcher or XTP Power Injectors.

Audio input gain and attenuation — Allows the level of gain or attenuation to be set, eliminating noticeable volume differences when switching between sources.

EDID and HDCP transmission — DDC channels are actively buffered, allowing continuous communication between source and display.

XTP integrated system products compatibility — An XTP System is a flexible, reliable signal switching and distribution system that provides a completely integrated solution for multiple digital and analog formats.

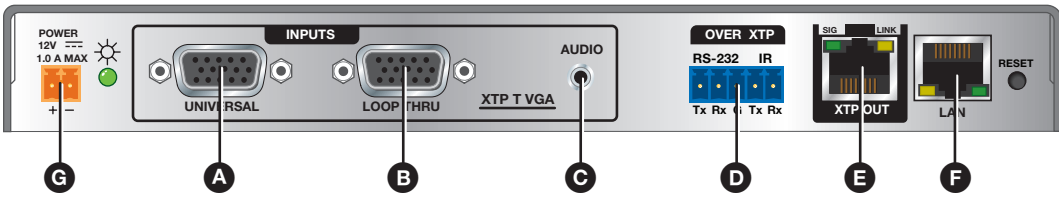
Installation and Operation

This section contains information for connecting and wiring the XTP T VGA. Topics in this section include:

- **Rear Panel Connectors**
- **Making Connections**
- **Operation**

The XTP T VGA can be mounted in a rack, under a desk, or on a tabletop (see **Mounting** on page 28 for more mounting details).

Rear Panel Connectors



- **A** Universal video connector
- **B** Analog 15-pin HD loop-through connector
- **C** Analog audio connector
- **D** RS-232 and IR Over XTP connector
- **E** XTP output connector
- **F** LAN connector
- **G** DC power connector

Figure 2. XTP T VGA Rear Panel Connectors

A **Universal video connector** — Connect a video source to the 15-pin HD connector. It accepts RGBHV, RGsB, RsGsBs, RGBS, RGBcvS, YUVi or YUVp/HDTV, S-video, and composite video (see **Universal Video Wiring** on page 5) signals.

B **Analog 15-pin HD loop-through connector** — Connect a video display to the 15-pin HD connector for a local monitor display of the universal analog video input.

C **Analog audio connector** — Connect an analog stereo audio source to the 3.5 mm TRS jack.

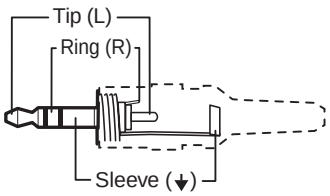
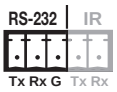
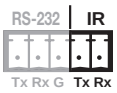


Figure 3. Wiring for the Analog Audio Connector

D **RS-232 Over XTP port** — To pass bidirectional serial or other control signals between XTP-compatible devices, connect a control device to the 5-pole captive screw connector. The port includes only the 3 poles labeled "RS-232."



IR Over XTP port — To transmit and receive IR signals (up to 40 kHz), connect a control device to the 5-pole captive screw connector. This port only includes the 2 poles labeled "IR" and shares the ground pole with the RS-232 port.



NOTE: RS-232 and IR data can be transmitted simultaneously (see **RS-232 and IR Over XTP Communication** on page 7 for wiring details).

E **XTP output connector** — Connect a twisted pair cable to the RJ-45 connector labeled "XTP Out" and the XTP input port on another XTP device to pass all signals (see **TP Cable Termination and Recommendations** on page 6). This cable carries the following signals:

- Digital video
- Digital audio
- Bidirectional RS-232 and IR commands
- Remote power
- Ethernet communication
- System communication

Signal LED indicator — Lights green when the transmitter outputs a video signal or a test pattern.

Link LED indicator — Lights yellow when XTP devices are connected and communication is established.

ATTENTION:

- Do not connect this connector to a computer data or telecommunications network.
- XTP remote power is intended for indoor use only. No part of the network that uses XTP remote power should be routed outdoors (see **Remote power** on page 9).

F **LAN connector** — Connect a control device or device to be controlled to this LAN connector for 10/100 Ethernet communication through this pass-through port. LEDs on this connector indicate link and activity status.

G **Power connector and LED** — Connect an external power supply to the 3.5 mm, 2-pole captive screw connector (see **Power Connection** on page 8). The Power LED lights to indicate the device is receiving power.

NOTE: The XTP T VGA can be powered remotely (see **Remote power** on page 9).

Making Connections

Universal Video Wiring

Use the following pin configurations for the 15-pin HD connector.

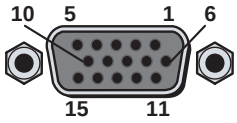
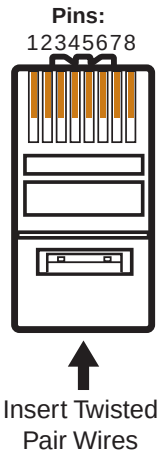


Figure 4. 15-Pin HD Connector Pins

Pinout Table for 15-pin HD Connectors						
Pin	**RGBHV**	**RGBS**	**RGsB**	**Component**	**S-video**	**Composite**
1	Red	Red	Red	R-Y		
2	Green	Green	Green/Sync	Y	Luma	Video
3	Blue	Blue	Blue	B-Y	Chroma	
4	No Connection	No Connection	No Connection			
5	No Connection	No connection	No connection			
6	Red Return	Red return	Red return	R-Y return		
7	Green return	Green return	Green return	Y return	L return	Video return
8	Blue return	Blue return	Blue return	B-Y return	C return	
9						
10	Ground	Ground	Ground			
11	No connection	No connection	No connection			
12	EDID/DDC	EDID/DDC	EDID/DDC			
13	H sync	C sync				
14	V sync					
15	EDID/DDC	EDID/DDC	EDID/DDC			

TP Cable Termination and Recommendations

Use the following pin configurations for twisted pair cables.



Straight-through Cable (for connection to a switch, hub, or router)			
TIA/EIA-T568A		**TIA/EIA-T568B**	
Pin	**Wire Color**	**Pin**	**Wire Color**
1	White-green	1	White-orange
2	Green	2	Orange
3	White-orange	3	White-green
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Orange	6	Green
7	White-brown	7	White-brown
8	Brown	8	Brown

Figure 5. TP Cable Termination

Supported cables

The XTP T VGA is compatible with shielded twisted pair (F/UTP, SF/UTP, and S/FTP) and unshielded twisted pair (U/UTP) cables.

ATTENTION:

- Do not use Extron UTP23SF-4 Enhanced Skew-Free AV UTP cable or STP201 cable to link the XTP products.
- To ensure FCC Class A and CE compliance, STP cables and STP connectors are required.

Cable recommendations

Extron recommends using the following practices to achieve full transmission distances up to 330 feet (100 meters) and reduce transmission errors.

- Use the following Extron XTP DTP 24 SF/UTP cables and connectors for the best performance:
  - **XTP DTP 24/1000** Non-Plenum 1000’ (305 m) spool 22-236-03
  - **XTP DTP 24P/1000** Plenum 1000’ (305 m) spool 22-235-03
  - **XTP DTP 24 Plug** Package of 10 101-005-02
- If not using XTP DTP 24 cable, at a minimum, Extron recommends 24 AWG, solid conductor, STP cable with a minimum bandwidth of 400 MHz.
- Terminate cables with shielded connectors to the TIA/EIA-T568B standard (see figure 5).
- Limit the use of more than two pass-through points, which may include patch points, punch down connectors, couplers, and power injectors. If these pass-through points are required, use shielded couplers and punch down connectors.

NOTE: When using STP cable in bundles or conduits, consider the following:

- Do not exceed 40% fill capacity in conduits.
- Do not comb the cable for the first 20 m, where cables are straightened, aligned, and secured in tight bundles.
- Loosely place cables and limit the use of tie wraps or hook and loop fasteners.
- Separate twisted pair cables from AC power cables.

RS-232 and IR Over XTP Communication

The RS-232 and IR Over XTP connector is for pass-through transmission of serial signals, such as projector control signals, and infrared data. To pass bidirectional serial command signals between XTP-compatible devices, connect a control device to the three leftmost poles (Tx, Rx, and G) of the 5-pole captive screw connector. To transmit and receive IR signals, connect a control device to the three rightmost poles (G, Tx, and Rx). The ground (G) pole is shared.

NOTE: RS-232 and IR data can be transmitted or received simultaneously (see figure 6 for wiring considerations).

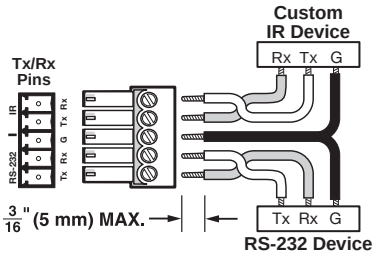


Figure 6. Wiring the RS-232 and IR Over XTP Connector

ATTENTION: The length of exposed wires is critical.

- The ideal length is 3/16 inch (5 mm).
- Longer bare wires can short together.
- Shorter wires are not as secure in the connectors and could be pulled out.

Power Connection

Apply power to the switcher locally with the provided power supply or remotely with a power injector or a matrix switcher.

ATTENTION: XTP remote power is intended for indoor use only. No part of the network that uses XTP remote power should be routed outdoors.

Local power

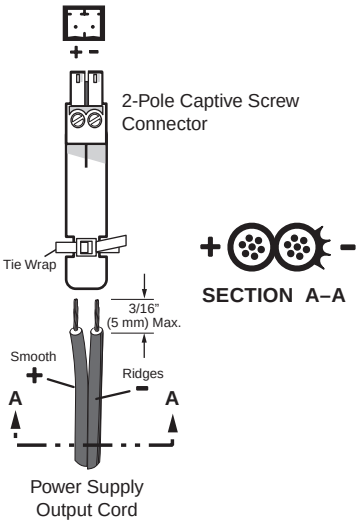


Figure 7. Power Wiring

The XTP T VGA can be connected to a local power supply.

WARNING: Electric shock hazard. The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.

ATTENTION:

- This product is intended to be supplied by a Listed Power Unit marked "Class 2" or "LPS," rated 12 VDC, 1.0 A minimum. Always use a power supply supplied by or specified by Extron. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the end product.
- Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities. The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 725 and the Canadian Electrical Code part 1, section 16. The power supply shall not be permanently fixed to a building structure or similar structure.
- Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the unit. The ridges on the side of the cord identify the power cord negative lead.
- The length of the exposed (stripped) copper wires is important. The ideal length is 3/16 inch (5 mm).

TIP: Do not tin the stripped power supply leads. Tinned wires are not as secure in the captive screw connectors and could be pulled out.

Use the supplied tie wrap to strap the power cord to the extended tail of the connector.

Remote power

The XTP T VGA can be powered remotely through an XTP Power Injector or through an XTP matrix switcher.

ATTENTION: XTP remote power is intended for indoor use only. No part of the network that uses XTP remote power should be routed outdoors.

Power injector

To power the XTP T VGA remotely with an XTP Power Injector, power one device locally (see **Local power** on page 8) and connect an XTP Power Injector to the XTP cable run along the XTP ports (see the *XTP Power Injector User Guide* for more installation information).

NOTE: The power injector provides remote power up to 330 feet with a STP cable with 24 AWG wire.

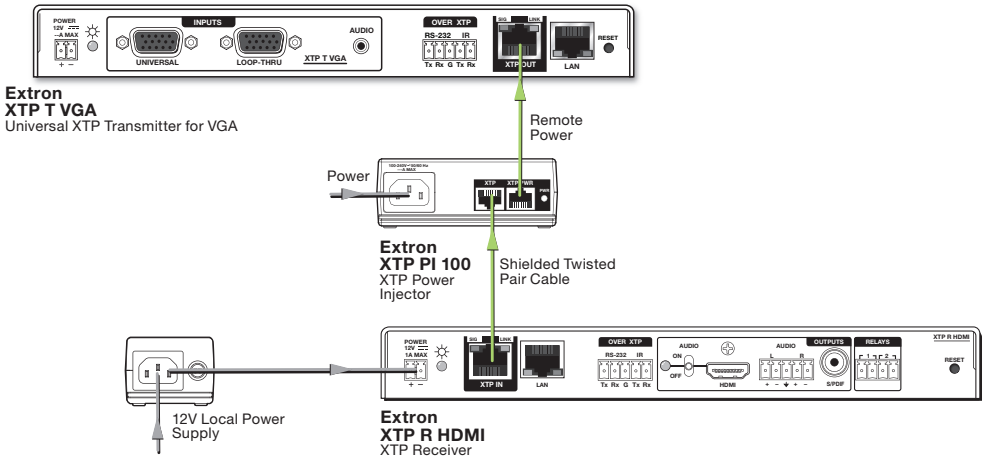


Figure 8. Typical Point-to-point Application with Remote Power to the XTP T VGA

Direct power from an XTP matrix switcher

XTP matrix switchers have a fixed amount of power available to provide remote power to connected XTP devices (refer to the user guide of the XTP matrix switcher for more details). To manage available power from the XTP matrix switcher, use the XTP System Configuration Software with the XTP matrix switcher (see **XTP System Configuration Software** on page 16).

Operation

Front Panel Features

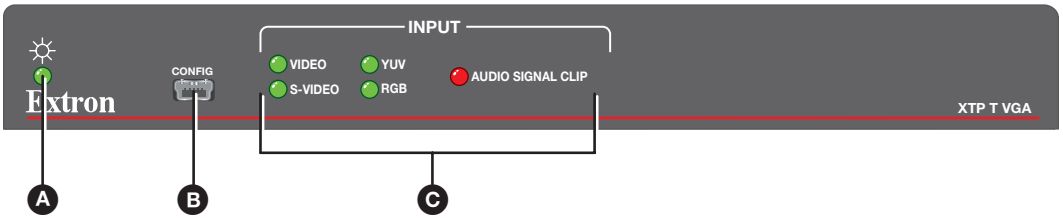


Figure 9. XTP T VGA Front Panel Features

A **Power LED indicator** — Lights when power is applied to the unit. There are two Power LED indicators, one on the front panel and one on the left side of the rear panel.

B **Config port** — Connect a host device to the front panel mini USB B Config port.

C **LED indicators:**

Video LED indicator — Lights when a composite video signal is detected.

S-video LED indicator — Lights when an S-video signal is detected.

YUV LED indicator — Lights when a component video signal is detected.

RGB LED indicator —Lights when an RGB video signal is detected.

Audio Signal Clip LED indicator — Lights when the analog audio input signal is -3 dBFS or above. The light remains lit for 200 ms after the audio input signal drops below -3 dBFS.

EDID

To manage EDID on the XTP T VGA, use the XTP System Configuration Software (see **EDID Minder** on page 26). The XTP T VGA can record and save EDID in a user memory location, select a pre-defined EDID, or use EDID from a display connected to a receiver. EDID stored in the user memory location can come from the display connected to a receiver or a custom EDID imported through the XTP System Configuration Software.

NOTE: In matrix applications, EDID on the transmitter is assigned by the matrix switcher using the XTP System Configuration Software.

Reset Modes

Use the recessed Reset button on the rear panel of the switcher to return the device to default settings or to restore factory-shipped firmware.

	Reset Mode Summary		
	Mode Activation	**Result**	**Purpose/Notes**
Factory Reset (Mode 1)	Press the recessed Reset button while applying power to the device. **NOTE:** After a mode 1 reset, update the device with the latest firmware version. DO NOT operate the system with the firmware version that results from this mode reset.	The device reverts to the factory default firmware. **NOTE:** If you do not want to update the firmware or if you perform a mode 1 reset by mistake, cycle power to the device to return the firmware version running prior to the reset.	Use mode 1 to roll back to factory firmware for a single power cycle if an incompatibility issue arises.

SIS Configuration and Control

The XTP T VGA can be configured and controlled using Extron Simple Instruction Set (SIS) commands or the XTP System Configuration Software (see **XTP System Configuration Software** on page 16). This section contains basic SIS communication details and SIS commands and responses when connected directly to the XTP T VGA. Topics in this section include:

- **Host Device Connection**
- **SIS Programming Guide**
- **Command and Response Tables for SIS Commands**

Host Device Connection

Use a computer running the HyperTerminal or Extron DataViewer utility, or a control system to enable serial control of the transmitter. To connect directly to an XTP T VGA, connect the computer to the XTP T VGA through the front panel USB Config port

SIS Programming Guide

Host-to-Device and Device-to-Host Communication

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the XTP T VGA determines that a command is valid, it executes the command and sends a response to the host device. All responses from the switcher to the host end with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

Error Responses

When the XTP T VGA receives an SIS command and determines that it is valid, it performs the command and sends the corresponding response to the host device. If the command is determined invalid or contains invalid parameters, the transmitter returns an error response to the host. The error response codes are:

E1Ø = Invalid command
E11 = Invalid preset number
E12 = Invalid port number
E13 = Invalid parameter
E14 = Not valid for this configuration
E17 = Invalid command for signal type

Using the Command and Response Table for SIS Commands

The command and response tables begin on page 13. Figure 10 shows the hexadecimal equivalent of ASCII characters used in the command and response tables.

NOTE: Upper and lowercase text can be used interchangeably unless otherwise stated.

Space →

ASCII to Hex Conversion Table										Esc	1B	CR	ØD	LF	ØA
	2Ø	!	21	"	22	#	23	$	24	%	25	&	26	'	27
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
Ø	3Ø	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	4Ø	A	41	B	42	C	43	D	44	E	45	F	46	G	47
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	5Ø	Q	51	R	52	S	53	T	54	U	55	V	56	W	57
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	6Ø	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	7Ø	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B	l	7C	}	7D	~	7E	DEL	7F

Figure 10. ASCII to Hexadecimal Conversion

Symbol Definitions

↵ = Carriage return and line feed

| or ← = Carriage return with no line feed

• = Space

W or Esc = Escape key

Command and Response Tables for SIS Commands

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Input Commands			
Input video format			
Set video format	X1 \	Ityp X1 * X2 ↵	Set the input video format to X2.
View video format	\	Ityp X1 * X2 ↵	View the input video format.
Audio Configuration Commands			
Audio gain and attenuation			
NOTE: Gain and attenuation commands are case-sensitive.			
Set audio gain	X4 G	Aud X6 ↵	Set audio gain to X4.
Set audio attenuation	X5 g	Aud X6 ↵	Set audio attenuation to X5.
Increment audio level	+G or +g	Aud X6 ↵	Increase the audio level.
Decrement audio level	-G or -g	Aud X6 ↵	Decrease the audio level.
View audio level	G or g	Aud X6 ↵	View the audio level.
Black signal resolution			
Set black signal resolution	Esc A X7 AFMT ←	AfmtA X7 ↵	Set the black signal resolution to X7.
View black signal resolution	Esc AAFMT ←	AfmtA X7 ↵	View the black signal resolution.
Black signal for audio only			
NOTE: The transmitter uses a black signal to simulate a 720p or 1080p, 50 Hz or 60 Hz signal so audio can be passed without video.			
Enable black signal	Esc B1AFMT ←	AfmtB X3 ↵	Enable a black signal for audio only.
Disable black signal	Esc BØAFMT ←	AfmtB X3 ↵	Disable the black signal.
View black signal setting	Esc BAFMT ←	AfmtB X3 ↵	View the black signal setting.

NOTE:

X1 = Input video format
- Ø = Auto (default)
- 1 = Video
- 2 = S-video
- 3 = SCART
- 4 = YUV Interlace
- 5 = RGB
- 6 = YUV

X2 = Detected video format
- 1 = Video
- 2 = S-video
- 3 = SCART
- 4 = YUV Interlace
- 5 = RGB
- 6 = YUV

X3 = Enable or disable
- Ø = off or disable
- 1 = on or enable (default)

X4 = Audio gain
- Ø-24

X5 = Audio attenuation
- -18-Ø

X6 = Audio level
- -18-+24 (Ø = default)

X7 = Black signal resolution
- 2 = 720p @ 50 Hz
- 4 = 720p @ 60 Hz (default)
- 6 = 1080p @ 60 Hz

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Picture Adjustment Commands			
Tint			
NOTE: Tint adjustments are for NTSC S-video and NTSC composite video.			
Set tint	Esc X8 TINT ←	Tint X8 ↵	Set the tint to X8.
Increment value	Esc +TINT ←	Tint X8 ↵	Increase the tint value.
Decrement value	Esc -TINT ←	Tint X8 ↵	Decrease the tint value.
View tint	Esc TINT ←	Tint X8 ↵	Show the tint value.
Contrast			
NOTE: Contrast adjustments are for RGBcvS (SCART), interlaced component (YUVi), S-video, and NTSC composite video.			
Set contrast	Esc X8 CONT ←	Cont X8 ↵	Set the contrast to X8.
Increment value	Esc +CONT ←	Cont X8 ↵	Increase the contrast value.
Decrement value	Esc -CONT ←	Cont X8 ↵	Decrease the contrast value.
View contrast	Esc CONT ←	Cont X8 ↵	Show the contrast value.
Brightness			
NOTE: Brightness adjustments are for RGBcvS (SCART), interlaced component (YUVi), S-video, and NTSC composite video.			
Set brightness	Esc X8 BRIT ←	Brit X8 ↵	Set the brightness to X8.
Increment value	Esc +BRIT ←	Brit X8 ↵	Increase the brightness value.
Decrement value	Esc -BRIT ←	Brit X8 ↵	Decrease the brightness value.
View brightness	Esc BRIT ←	Brit X8 ↵	Show the brightness value.
Pixel phase			
NOTE: Pixel phase adjustments are for RGBHV and non-interlaced component (YUVp) video.			
Set pixel phase	Esc X8 PHAS ←	Phas X8 ↵	Set the pixel phase to X8.
Increment value	Esc +PHAS ←	Phas X8 ↵	Increase the pixel phase value.
Decrement value	Esc -PHAS ←	Phas X8 ↵	Decrease the pixel phase value.
View pixel phase	Esc PHAS ←	Phas X8 ↵	Show the pixel phase value.

NOTE: X8 = Picture adjustment Ø-255 (128 = default)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Horizontal shift			
Set horizontal shift	Esc X9 HCTR ←	Hctr X9 ↵	Set the horizontal location of the first active pixel.
Increment value	Esc +HCTR ←	Hctr X9 ↵	Move the image to the right.
Decrement value	Esc -HCTR ←	Hctr X9 ↵	Move the image to the left.
View horizontal shift	Esc HCTR ←	Hctr X9 ↵	Show the horizontal location of the first active pixel.
Vertical shift			
Set vertical shift	Esc X9 VCTR ←	Vctr X9 ↵	Set the vertical location of the first active pixel.
Increment value	Esc +VCTR ←	Vctr X9 ↵	Move the image down.
Decrement value	Esc -VCTR ←	Vctr X9 ↵	Move the image up.
View vertical shift	Esc VCTR ←	Vctr X9 ↵	Show vertical location of the first active pixel.
Image reset			
Execute an image reset	1A	Aadj1 ↵	Set picture adjustment settings to the default values.
Preset Commands			
Save an input preset	X10,	Spr X10 ↵	Save the current configuration to preset X10.
Recall an input preset	X10.	Rpr X10 ↵	Recall the preset X10 configuration.
EDID Commands			
NOTE: For EDID management, use the XTP System Configuration Software (see **EDID Minder** on page 26).			
Advanced Configuration Commands			
Test pattern			
Set a test pattern	X12 J	Tst X12 ↵	Set a test pattern or disable one.
View the current test pattern	J	Tst X12 ↵	View the current test pattern.
Factory defaults			
System reset	Esc ZXXX ←	Zpx ↵	Resets unit to factory default.
Status			
View input signal presence	ØLS	Frq X14 ↵	View the presence of an input signal.
Query firmware version	Q	x.xx ↵	View the firmware version.
Query full firmware version	*Q	x.xx.xxxx ↵	View the full firmware version.
Query part number	N	6Ø-1231-12 ↵	View the part number.

NOTE:

X9 = Horizontal or vertical shift	Ø-65535 (32768 = default)
X10 = Preset number	1-8
X12 = Test pattern	Ø = off (default) 1 = 720p @ 50 Hz 3 = 720p @ 60 Hz 5 = 1080p @ 60 Hz
X14 = Input signal presence	Ø = no input detected 1 = input detected

XTP System Configuration Software

The XTP T VGA can be configured and controlled using Extron Simple Instruction Set (SIS) commands (see **SIS Configuration and Control** on page 11) or the XTP System Configuration Software. This section contains installation and configuration procedures for the XTP System Configuration Software for configuring and controlling the XTP T VGA. Topics in this section include:

- **Installing the XTP System Configuration Software**
- **Using the XTP System Configuration Software**

Installing the XTP System Configuration Software

The program is available for download on the Extron website, **www.extron.com**.

Figure 11. Extron Website Download Page

1. On the Extron website, click the **`Download`** tab (see figure 11, ❶).
2. From the left sidebar, click the **`XTP System Configuration Software`** link (see figure 11, ❷).
3. Click the **`Download Now`** button (see figure 11, ❸).
4. Submit any required information to start the download. Note where the file is saved.
5. Open the executable (.exe) file from the save location.
6. Follow the instructions that appear on the screen. By default, the installation creates a directory in the appropriate Program Files folder named “Extron Electronics\XTP System Configuration.”

Using the XTP System Configuration Software

The XTP T VGA can be controlled directly from the front panel config port or remotely from an XTP matrix switcher.

Connections

When opening the XTP System Configuration Software, the Connections screen opens first. This screen is used to establish communication with an XTP device via USB (see **Config port** on page 10). Ensure the transmitter is connected and powered on before attempting to connect to it.

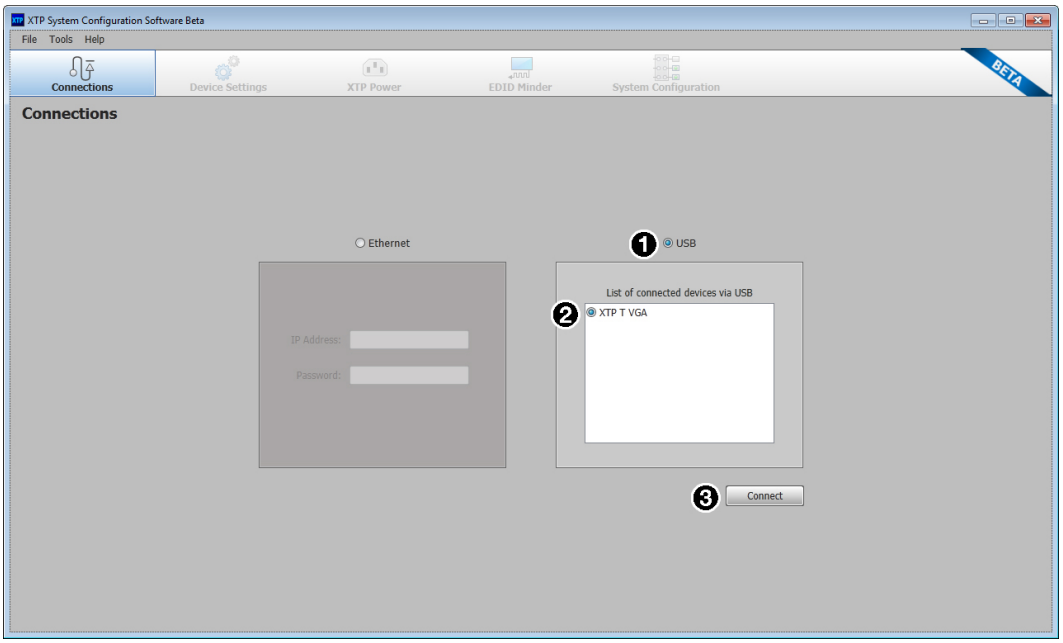


Figure 12. Connections Screen

1. From the Connections screen in the software, select the **USB** radio button (see figure 12, ❶).
2. Select the connected device to be controlled from the displayed list (see ❷).
3. Click the **Connect** button (see ❸). The Device Settings screen opens.

Top Menu

The top menu bar contains three menus for configuring software settings.

File menu

The **File** menu contains options for disconnecting from the transmitter and exiting the program. To access the menu, click the **File** menu.

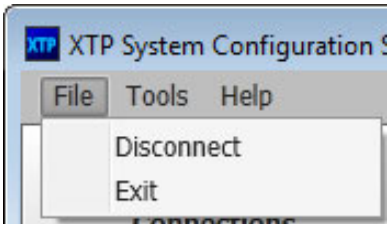


Figure 13. File Menu

Disconnect

This option disconnects the XTP System Configuration Software from the connected device.

From the **File** menu, select **Disconnect**. The Connections screen opens.

NOTE: If the device is already disconnected, the **Disconnect** option is disabled until a device is connected.

Exit

This option disconnects the receiver from the software and closes the application.

From the **File** menu, select **Exit**. The application closes.

Tools menu

The **Tools** menu contains an option for updating firmware. To access this menu, click the **Tools** menu.

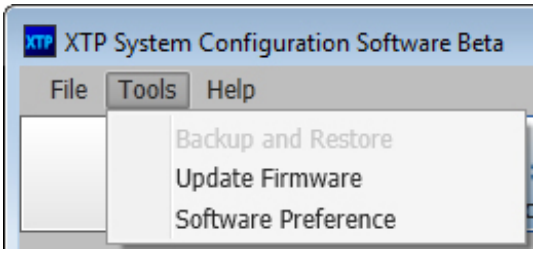


Figure 14. Tools Menu

NOTE: The **Backup and Restore** and **Software Preference** options are not available when directly connected to the XTP T VGA.

Update Firmware

This option uploads firmware from the host device to the connected device.

NOTE: If necessary, download new firmware from the Extron website (see **Downloading Firmware** on page 30).

1. From the **Tools** menu, select **Update Firmware**. A dialog box opens to ask permission to disconnect from the device.

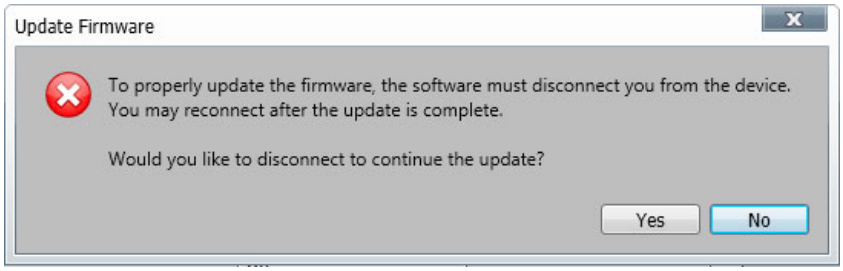


Figure 15. Confirm Disconnect Dialog Box

2. Click the **Yes** button to disconnect from the device and continue with the firmware update process. The Update Firmware dialog box opens.

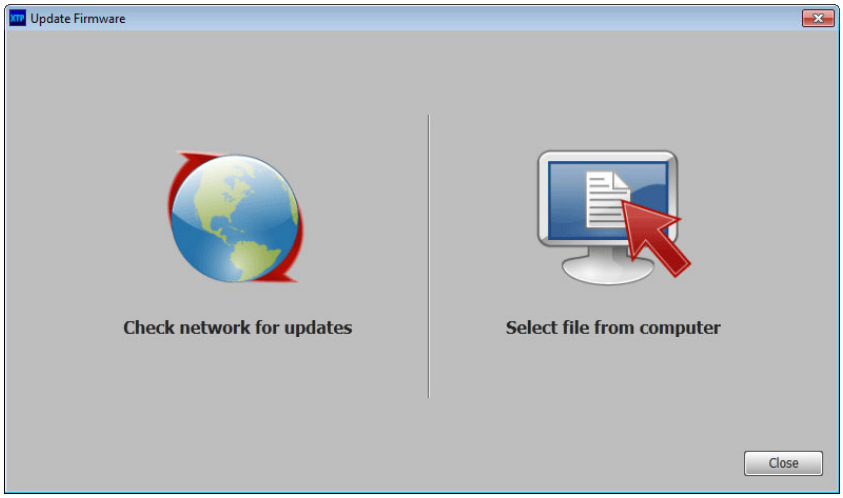


Figure 16. Update Firmware Dialog Box

3. Click the **Check network for updates** icon to search the LAN or WAN for firmware files or click the **Select file from computer** icon to select a firmware file from the connected host device.
4. Select the desired firmware file and click the **Open** button.
5. Click the **Close** button after the firmware finishes updating.

Help menu

The **Help** menu contains XTP System Configuration Software information, the help file, and a link to the Extron website.

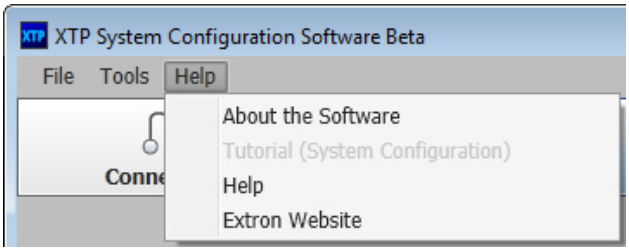


Figure 17. Help Menu

NOTE: The **Tutorial (System Configuration)** option is not available when directly connected to the XTP T VGA.

About the Software

This option provides basic information about the XTP System Configuration Software, including version number and copyright information.

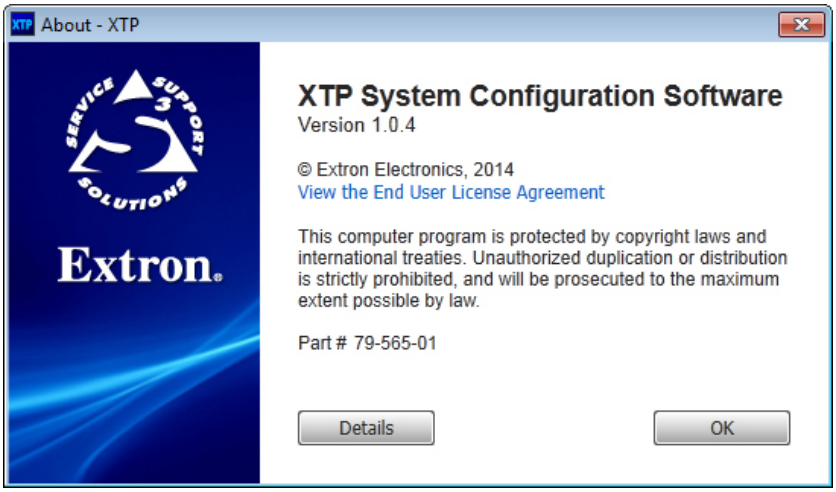


Figure 18. About - XTP Dialog Box (Example)

1. From the **Help** menu, select **About the Software**. The About - XTP dialog box opens.
2. Click the **Details** button for more information.
3. Click the **Ok** button to close the dialog box.

Help

This option opens the XTP System Configuration Software help file in a Web browser.

From the **Help** menu, select **Help**.

Extron Website

This option opens the Extron website in a Web browser.

From the **Help** menu, select **Extron Website**.

Device Settings

The Device Settings screen allows a user to view and edit various device settings for the device directly connected to the host device. Click the **`Device Settings`** icon (see figure 19, ❶) on the Global Navigation bar to open the Device Settings screen.

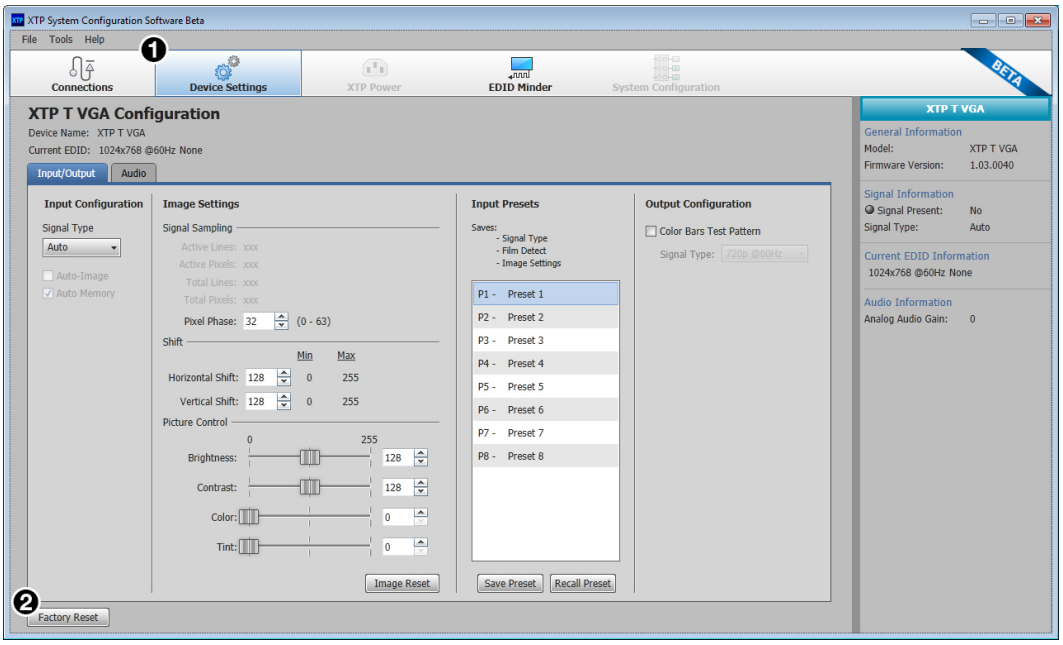


Figure 19. Transmitter Device Settings Screen

Input/Output tab

Click the **`Input/Output`** tab (see figure 20, ❶) to open the Input/Output screen. It contains input configuration, image settings, preset management, and output configuration options.

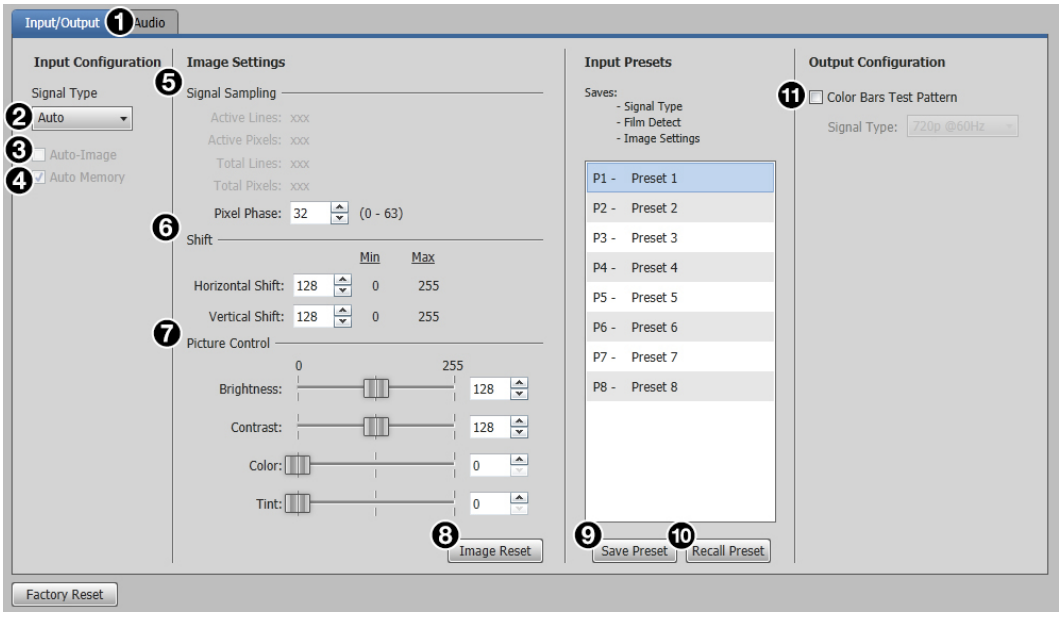


Figure 20. Input/Output Tab

Input Configuration panel

❷ **Signal Type** — From the **Signal Type** drop-down list, click the desired signal type.

❸ **Auto-Image** — Attempts to size and center the input signal based on the aspect ratio setting. Auto-Image is applied whenever there is a change in the input sync.

❹ **Auto Memory** — Recalls input and image settings for signals that have previously been applied. When it is disabled, the XTP T VGA treats every newly applied input as a new source.

Image Settings panel

❺ **Signal Sampling** — To adjust signal sampling settings, enter a value within acceptable range (displayed in parentheses to the right of the corresponding field) in the desired field or click the **Up** and **Down** arrows.

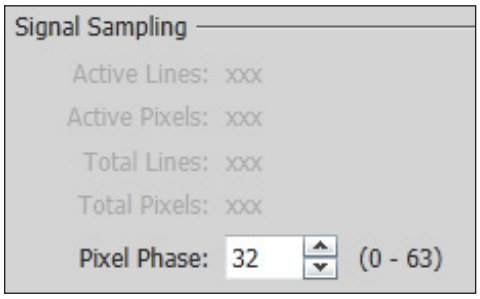


Figure 21. Signal Sampling Settings

❻ **Horizontal and Vertical Shift** — To adjust the horizontal and vertical shift settings, enter a value within the Min and Max values displayed to the right of the corresponding field or click the **Up** or **Down** arrows.

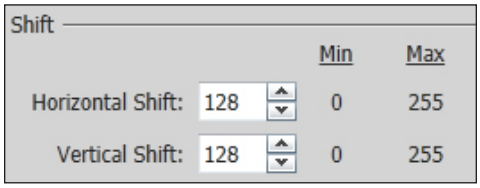


Figure 22. Shift Settings

❼ **Picture Control** — Click and drag the associated slider for any image setting (brightness, contrast, color, or tint).

Alternatively, enter a value within the field associated with the image setting, or click the **Up** and **Down** arrows to change the value in the field.

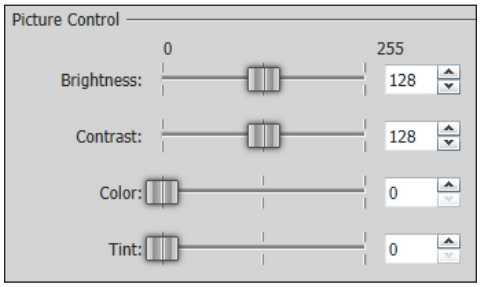


Figure 23. Picture Control Settings

❽ **Image Reset** — To reset color, tint, brightness, contrast, phase, horizontal shift, and vertical shift settings, click the **Image Reset** button to set pixel phase, horizontal shift, and vertical to the default values.

Input Presets panel

Input presets save signal sampling to be recalled later.

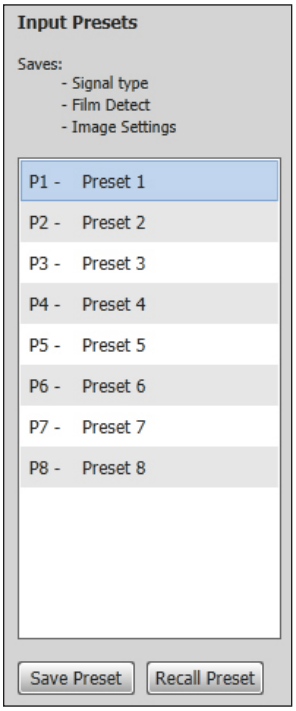


Figure 24. Input Presets panel

❾ **Save Preset** — To save a preset, select one from the list of presets and click the **`Save Preset`** button.

❿ **Recall Preset** — To recall a saved preset, select the desired preset from the list of presets and click the **`Recall Preset`** button.

Output Configuration panel

To aid display device setup and optimization, enable the color bars test pattern.

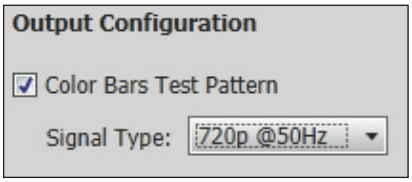


Figure 25. Output Configuration panel

⓫ **Color Bars Test Pattern** — To enable a color bars test pattern, select the **`Color Bars Test Pattern`** check box. When the test pattern is enabled, the **`Signal Type`** drop-down list becomes available. From the **`Signal Type`** drop-down list, select the desired resolution and refresh rate.

Audio tab

Click the **Audio** tab (see figure 26, ❶) to open the Audio screen. It contains input gain and output video mute options.

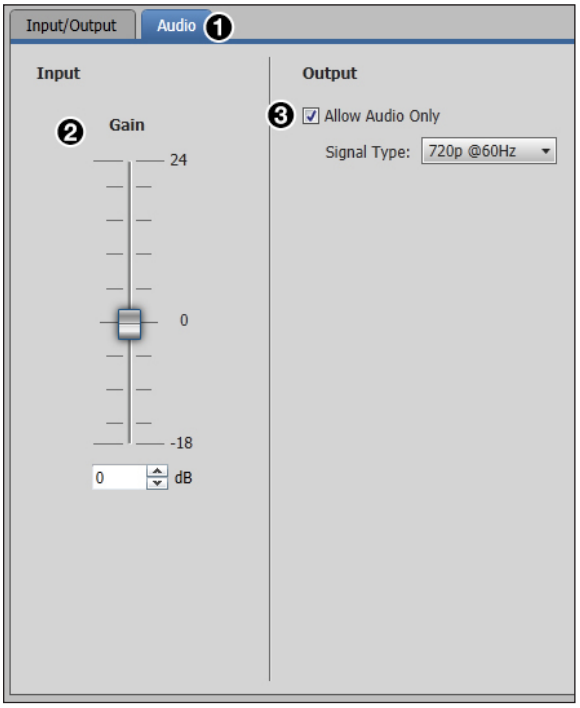


Figure 26. Audio Tab

Input panel

The analog input gain fader has a gain range of -18 to +24 dB. Adjustments are applied in 1 dB increments. The default setting is 0 dB.

❷ **Input Gain** — Click and drag the handle of the **Gain** slider, enter a value in the field, or click the **Up** or **Down** arrow to adjust the analog input gain.

Output panel

The transmitter uses a black signal to simulate a 720p or 1080p, 50 Hz or 60 Hz signal so audio can be passed without video.

❸ **Allow Audio Only** — To allow audio only to be output, select the **Allow Audio Only** check box. When enabled, select the desired resolution and refresh rate from the **Signal Type** drop-down list to emulate in place of video.

Factory reset

Click the **Factory Reset** button (see **figure 19**, ❷ on page 21) to reset the transmitter to factory settings except for firmware.

Device Information panel

The Device Information panel displays device information and settings.

General Information section

❶ **Model** — Displays the device model.

❷ **Firmware Version** — Displays the full firmware version.

Signal Information section

❸ **Signal Present** — Displays the signal presence of the input.

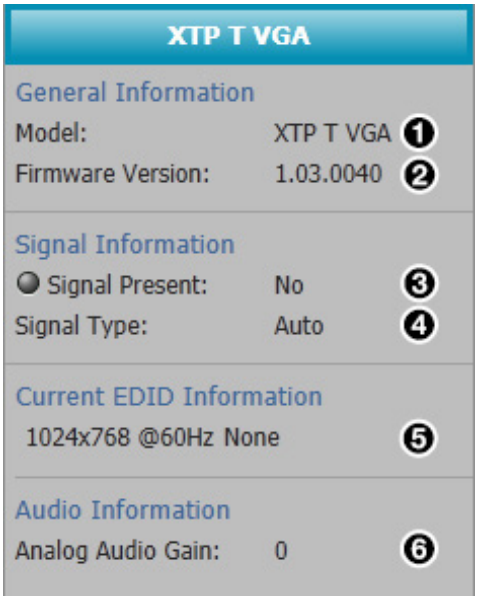
❹ **Signal Type** — Displays the current signal type setting (see **Input Configuration panel** on page 22).

Current EDID Information section

❺ **EDID** — Display the current EDID selected.

Audio Information section

❻ **Analog Audio Gain** — Displays the analog audio gain in dB.



EDID Minder

Use the EDID Minder screen to assign unique EDID to the input or match current output resolutions to the input. Click the **EDID Minder** icon (see figure 27, ❶) on the global navigation bar. The EDID Minder screen opens.

The EDID Minder screen displays a table of EDID options and connected output devices, which are each represented by output display icons.

- Factory default EDID options are displayed in blue.
- Connected output resolutions and devices are displayed in green.
- Custom loaded or saved EDID options are displayed in yellow.

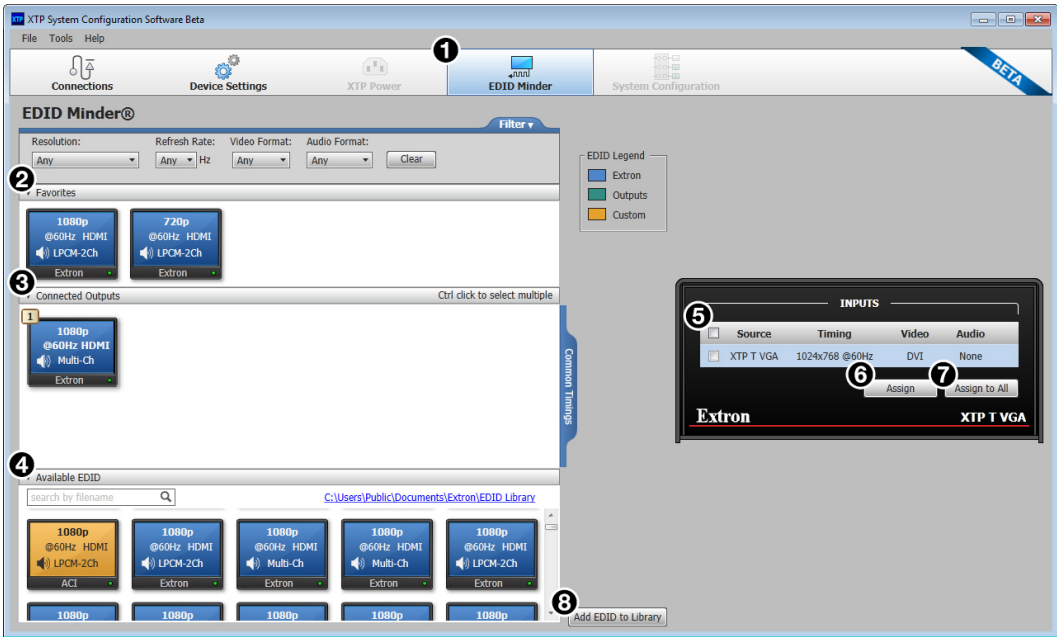


Figure 27. EDID Minder Screen

Assign EDID

1. Select an available EDID setting (represented by a blue, green, or yellow output display icon) from the Favorites, Connected Outputs, or Available EDID panel (see ❷-❹).
2. In the list of inputs on the right side of the screen, select the check box of the connected input (see ❺).

   TIP: Alternatively, click the **Assign to All** button (see figure 27, ❼) to assign a selected EDID to the input.

3. Click the **Assign** button (see ❻) below the input area.

TIP: Alternatively, EDID can be assigned by dragging and dropping the desired EDID onto the input.

Import EDID

1. On the EDID Minder screen, click the **Add EDID to Library** button (see ❽). A Windows Explorer window opens.
2. Select the desired EDID file and click **Open**. The EDID appears in the Available EDID panel (see ❹).
3. Assign the EDID from the Available EDID panel to import the EDID setting to the device.

Save output EDID

1. On the EDID Minder screen, right-click on the desired EDID setting in the **Connected Outputs** panel (see figure 27, ❸).
2. Select the **Save EDID to PC** option. The EDID setting is saved to the connected PC. Alternatively, right-click on the desired EDID, select **Copy**, and then **Paste** the EDID into the Favorites or Available EDID panel.

Set favorite EDID

Commonly used EDID settings can be added to the Favorites pane for quick access.

1. Click and drag the desired EDID from the Connected Outputs or the Available EDID panel to the Favorites panel. The EDID setting is copied to the Favorites panel (see figure 27, ❷). Alternatively, right-click the desired EDID and select **Copy**. Then **Paste** the EDID setting into the Favorites panel.

EDID filters

The filters can be used to easily and quickly locate specific EDID. Selectable filters include:

❶ Resolution
❷ Refresh rate
❸ Video format
❹ Audio format

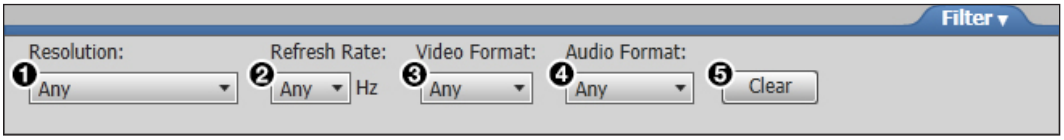


Figure 28. EDID Minder Filters

To use a filter or combination of filters:

1. Select an EDID setting from one of the drop-down lists of the associated filter (see figure 28, ❶-❹). The EDID options that match the filter settings are displayed in their respective panels.
2. Repeat step 1 to apply more filters.

To clear the currently applied filters:

1. Click the **Clear** button next to the filters (see figure 28, ❺). All filters are reset.

Common timings

This function automatically displays available EDID settings that are common among multiple selected outputs.

1. Hold <Ctrl> and click the desired outputs in the Connected Outputs panel. The **Common Timings** tab appears, listing the EDID settings common among the selected outputs.
2. Select the desired common EDID setting. The EDID will be shown in the Available EDID panel.

Reference Information

This section contains mounting information and updating firmware methods. Topics in this section include:

- **Mounting**
- **Updating Firmware with Firmware Loader**

Mounting

The XTP T VGA can be placed on a tabletop or mounted in a rack or underneath a desk.

Tabletop Mounting

Attach the provided rubber feet to the bottom four corners of the enclosure.

Mounting Kits

Mount the unit using any optional compatible rack shelf or mounting kit listed on the Extron **website** in accordance with the directions included with the kit. For rack-mounting, see **UL guidelines for rack-mounted devices** below.

UL guidelines for rack-mounted devices

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the XTP T VGA in a rack.

1. **Elevated operating ambient temperature** — If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature, Therefore, install the XTP T VGA in an environment compatible with the maximum ambient temperature (Tma = +122 ˚F, +50 ˚C) specified by Extron.
2. **Reduced air flow** — Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is not compromised.
3. **Mechanical loading** — Mount the equipment in the rack so that a hazardous condition is not achieved due to uneven mechanical loading.
4. **Circuit overloading** — Connect the equipment to the supply circuit and consider the effect that circuit overloading might have an overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, the use of power strips).

Updating Firmware with Firmware Loader

To upload and update firmware on the XTP T VGA, download the new firmware to a connected computer and upload the firmware with the Extron Firmware Loader utility.

Downloading Extron Firmware Loader

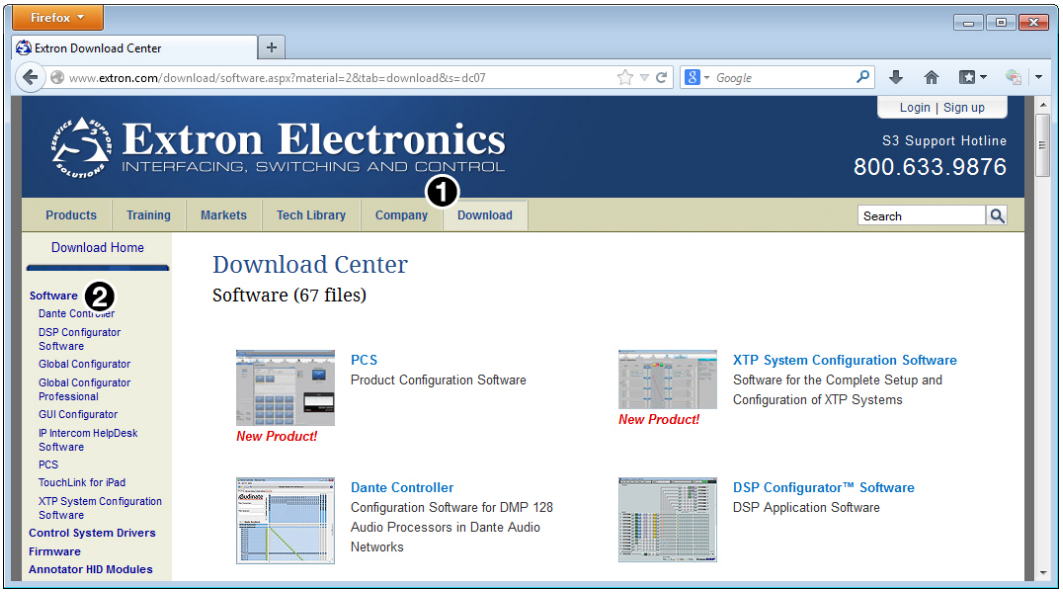


Figure 29. Software on the Extron Website

1. On the Extron **website**, click the **`Download`** tab (see figure 29, ❶).
2. From the left sidebar, click the **`Software`** link (see figure 29, ❷).

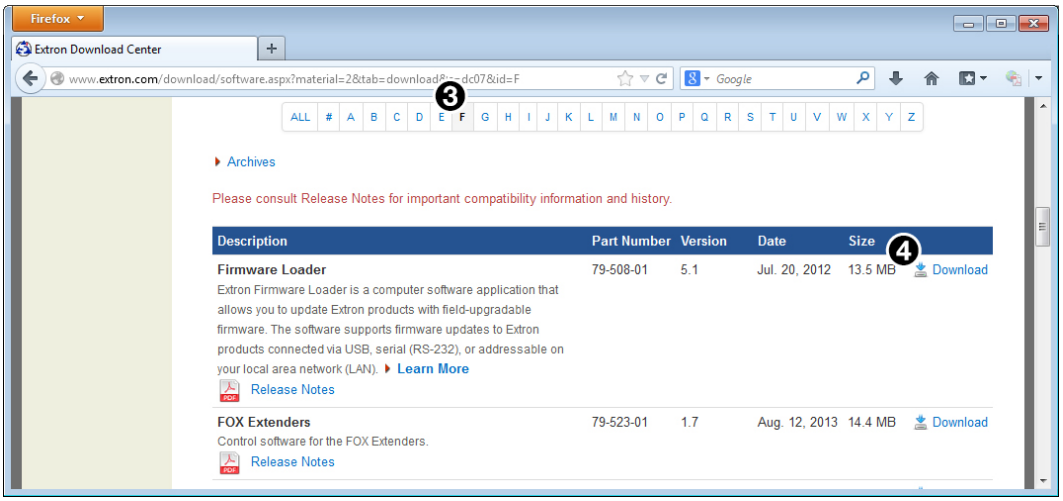


Figure 30. Firmware Loader on the Extron Website

3. Click the **`F`** link and navigate to Firmware Loader (see figure 30, ❸).
4. Click the **`Download`** link on the right that corresponds with the program (see figure 30, ❹).
5. Submit any required information to start the download. Note where the file is saved.

Installing Firmware Loader

1. Once Firmware Loader has been downloaded, run the .exe file from the save location. The installation wizard window opens.
2. Follow the instructions on the Installation Wizard screens to install Firmware Loader on the computer.

Downloading Firmware

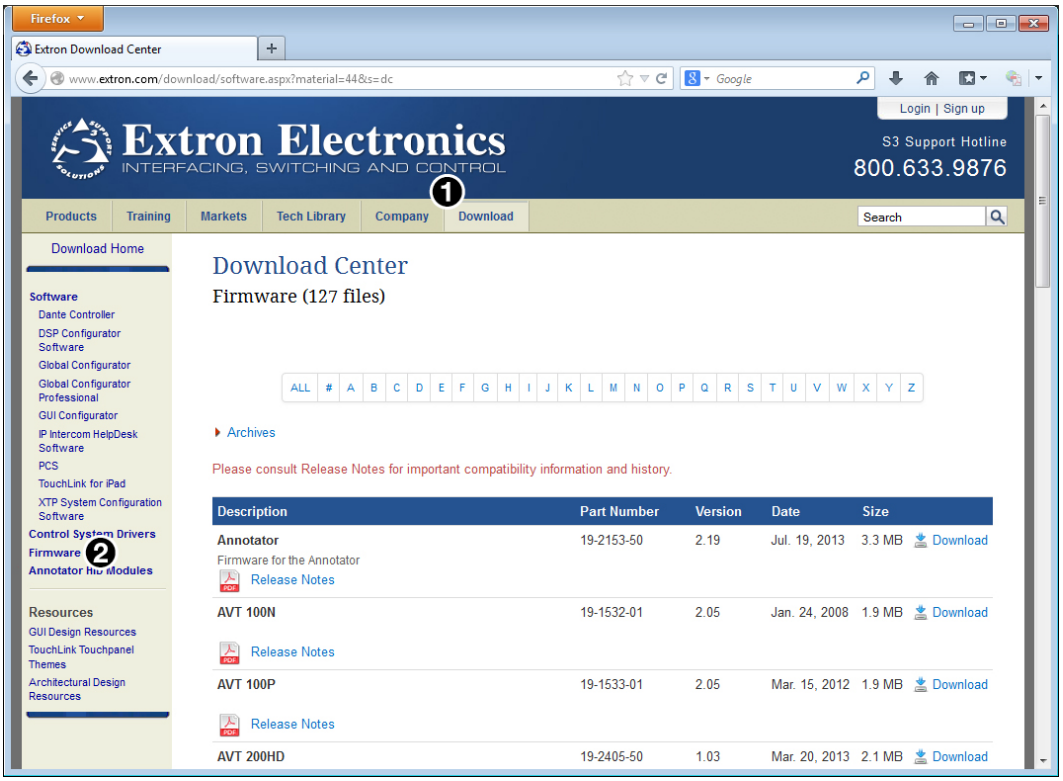


Figure 31. Downloading Firmware from the Extron Website

1. On the Extron **website**, click the **`Download`** tab (see figure 31, ❶).
2. From the left sidebar, click the **`Firmware`** link (see ❷).
3. Navigate to XTP T VGA.
4. Ensure the available firmware version is a later version than the current one on the device (see **Device Information panel** on page 25).

   NOTE: The firmware release notes are a PDF file that provides details about the changes between different firmware versions. The file can be downloaded from the same page as the firmware.

5. Click the **`Download`** link to the right of the desired device.
6. If required, enter any required information to start the download. Note where the file is saved.

Installing Firmware with Firmware Loader

Use the Firmware Loader utility to upload firmware to the transmitter when connected directly to the device.

1. Connect the host device to the front panel USB port.
2. Open Firmware Loader and establish a connection between the computer and the device. The Add Device... dialog box opens.

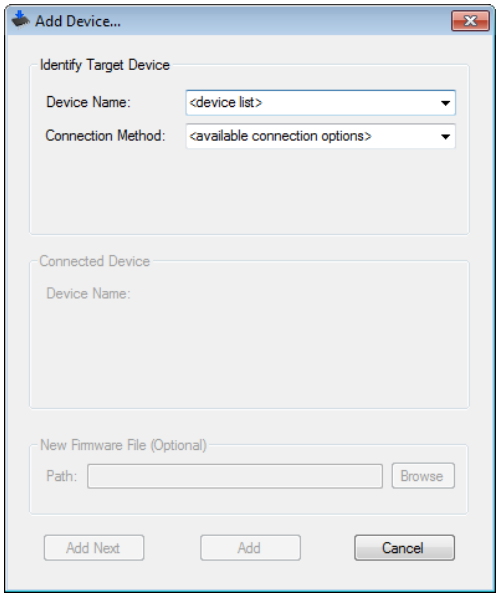


Figure 32. Add Device... Dialog Box

3. From the **Device Name** drop-down list, select **XTP T VGA**.
4. From the **Connection Method** drop-down list, select the method of connection.
5. Depending on the connection method, additional options appear. Make the appropriate selections for the current connection method.
6. Click the **Connect** button.
7. In the New File Firmware (Optional) panel, click the **Browse** button.
8. In the Open dialog box, navigate to the location of the new firmware file, select the desired file.

ATTENTION: Valid firmware files must have the file extension .S19. A file with any other extension is not a firmware upgrade for this device and could cause the device to stop functioning.

9. Click the **Open** button. The Browse dialog box closes.
10. Click the **Add** button. The Add Device... dialog box closes and the device and firmware are listed in the Firmware Loader main window.
11. Click the **Begin** button to start the upload process.
12. Close Firmware Loader when the **Remaining Time** field shows **00.00.00**, the **Progress** column shows **100%**, and the **Status** field shows **completed**

Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805
U.S.A.

Japan:
Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe and Africa:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:
Extron Asia Pte Ltd
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA: 714.491.1500 or 800.633.9876 **Europe**: 31.33.453.4040
Asia: 65.6383.4400 **Japan**: 81.3.3511.7655

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

Extron Headquarters		Extron Europe	Extron Asia	Extron Japan	Extron China	Extron Middle East	Extron Korea	Extron India
+1.800.633.9876 (Inside USA/Canada Only)		+800.3987.6673 (Inside Europe Only)	+65.6383.4400	+81.3.3511.7655	+86.21.3760.1568	+971.4.299.1800	+82.2.3444.1571	1800.3070.3777 Inside India Only
Extron USA - West	Extron USA - East	+31.33.453.4040	+65.6383.4664 FAX	+81.3.3511.7656 FAX	+86.21.3760.1566 FAX	+971.4.299.1880 FAX	+82.2.3444.1575 FAX	+91.80.3055.3777
+1.714.491.1500	+1.919.850.1000	+31.33.453.4050 FAX						+91.80.3055.3737 FAX
+1.714.491.1517 FAX	+1.919.850.1001 FAX							